

# Notice of Allowability

Application No.

09/846,707

Examiner

Brian E. Miller

Applicant(s)

KULA ET AL.

Art Unit

2652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendments filed 11/4/04 & 12/16/04.
2. ☒ The allowed claim(s) is/are 2-11, 13-16, 19 and 20 (renumbered as 2-3, 1, 4-7, 10, 8-9, 12-13, 11, 14-16).
3. ☒ The drawings filed on 4/30/01 & 11/4/04 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☒ Other page showing claim 11 change.

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Claims 2-11, 13-16, 19-20 are now pending.

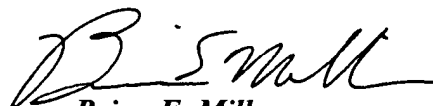
*Examiner's Amendment/Comments*

1. The Amendments filed 11/4/04 and 12/16/04, in combination, are considered to incorporate all the claim changes necessary to place the application in condition for allowance. It is noted though that the claim status identifier for claim 11 must be changed to read "CURRENTLY AMENDED", which will be done by the Examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian E. Miller whose telephone number is (571) 272-7578. The examiner can normally be reached on M-TH 7:15am-4:45pm (and every other friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**Brian E. Miller**  
**Primary Examiner**  
**Art Unit 2652**

BEM  
May 17, 2005

an upper layer disposed adjacent the underlayer and the pinning layer, the upper layer comprising at least one material selected from the group consisting of NiFe and CoFe for increasing a GMR ratio associated with the SV sensor;

wherein the sensor provides an increase of  $\Delta R/R$  of at least 5% when compared to an otherwise identical sensor not having the upper layer;

wherein the upper layer includes both NiFe and CoFe.

10. (CURRENTLY AMENDED) The spin valve sensor as recited in claim ~~[[1]]~~ 4, wherein the underlayer comprises NiFeX where X is not Cr.

CURRENTLY AMENDED

11. (~~PREVIOUSLY PRESENTED~~) The spin valve sensor as recited in claim ~~[[1]]~~ 4, wherein the upper layer is non-magnetic.

12. CANCEL

13. (CURRENTLY AMENDED) The method as recited in claim ~~[[12]]~~ 15, wherein the upper layer has a thickness of at least 4 Å.

14. (PREVIOUSLY PRESENTED) The method as recited in claim 13, wherein the upper layer has a thickness of no more than 20 Å.

15. (PREVIOUSLY PRESENTED) A method of fabricating a spin valve (SV) sensor comprising:

depositing an underlayer comprising NiFeX, where X is not Cr;

depositing an upper layer adjacent the underlayer, the upper layer comprising at least one material selected from the group consisting of NiFe and CoFe for increasing a GMR ratio associated with the SV sensor;

depositing a pinning layer towards the upper layer;

SJO9-2000-0121US1/HIT1P039